Amplitec®

Triple Wide Band Repeater
GDW Series User Manual

CE1177

Model:

C10C-GDW □ C15C-GDW □

C20C-GDW □ C24C-GDW □

http://www.amplitec.cn

CATALOGUE

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Chapter 1 Safety Warning

Users must follow the below principles:

1 Repeater should follow system requirement of communication equipment, assure good groundings and lightning protection.

2 The power supply voltage of repeater should meet the standards of security requirement; any repeater-operator can operate only after cutting power in advance. Only the professional can operate electrified.

3 Do not dismantle machine, maintain or displace accessories by yourself, because in this way, the equipment may be damaged or even get an electric shock.

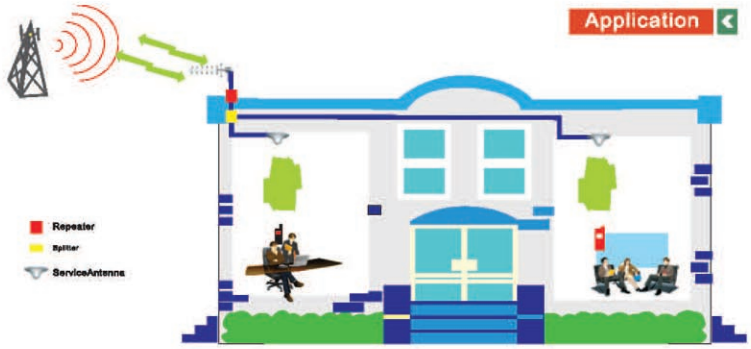
4 Do not open the repeater, touch the module of repeater, even not to open the cover of module to touch the electronic component, the components will be damaged due to electrostatic

5 Please keep away from heating-equipment, because the repeater will dissipate heat when working. And do not cover repeater with anything that influences heat-dissipation.

Chapter 2 Summary

In mobile communication, it is inevitable that macro-cell coverage cannot cover weak or dead zones; to use repeater is a good choice in these areas. Indoor repeaters mainly applied in covering small blind and weak zones.

GDW triple wide band repeater is a good choice for VIP rooms, offices, houses, restaurants, apartments, packing, etc.



Picture 2.1 Application

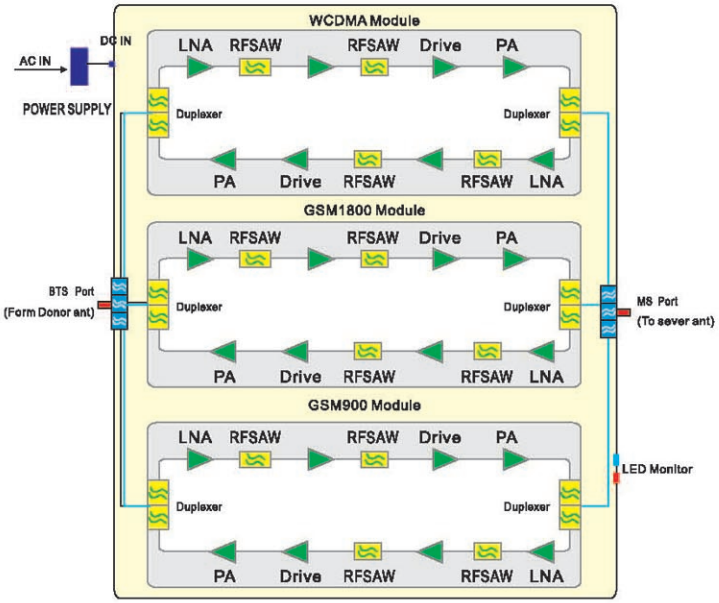
GDW triple wide band repeater enhances consumer satisfaction greatly with its integrated design, compact size, easy engineering and rapid installation and debugging,

GDW triple wide band repeaters are made with the characteristics of aesthetic design, and thus can be installed in high-class places as a decoration.

Chapter 3 Specs and Features

3.1 Features

- Adjustable range of 31dB at 1dB per step.
- Highly stable power design, to work normally even in very tough power environments.
- ALC technology to maintain stable signal in coverage areas.
- Compact design , light weight and cost effectiveness.
- LED indication for power on/off ?Wide band function to work on all mobile operators, GPRS, EDGE, HSDPA, WCDMA support.
- Low power consumption , low interference.
- Applicable to In-building with medium or small size with maximum coverage up to 200~8000 square meters , such as VIP.



3.3 Electrical Specification

Items		Uplink	Downlink
Frequency Range	GSM	890 ~ 915MHz	935 ~ 960MHz
	DCS	1710~1785 Mhz	1805~1880MHz
	WCDMA	1920~1980MHz	2110~2170MHz
Output Power	C10C	10 dBm	10 dBm
	C15C	10 dBm	15 dBm
	C20C	15 dBm	20 dBm
	C24C	17 dBm	24 dBm
Gain	C10C	65 dB	65 dB
	C15C	65 dB	65 dB
	C20C	70 dB	70 dB
	C24C	70 dB	75 dB
ATT step of 1dB	1 ~ 10dB	| △ | ≤1 dB	| △ | ≤1 dB
	10 ~ 20dB	| △ | ≤1 dB	| △ | ≤1 dB
	20 ~ 25dB	| △ | ≤1.5 dB	| △ | ≤1.5 dB
ALC Active 10dB		| △ | ≤2 dB	| △ | ≤2 dB
LED Indication	Power ON	Green	
	Power OFF	No Light	
Alarm	ALC not Active	—	Green
	ALC Active 5-10dB	—	Orange
	ALC Active15-20dB	—	Red
Bandwidth	GSM	25MHz	25MHz
	DCS	75MHz	75MHz
	WCDMA	60MHz	60MHz

Ripple in Band	GSM	≤8 dB	≤8 dB
	DCS	≤10 dB	≤10 dB
	WCDMA	≤6 dB	≤6 dB
VSWR		≤2.2	≤2.2
Max. Input Power Without Damage		-10 dBm	-10 dBm
Intermodulation Products	9KHz~1GHz	≤-36 dBm	≤-45 dBc
	1GHz~12.75 Ghz	≤-30 dBm	≤-45 dBc
Spurious Emission	9KHz~1GHz	≤-36 dBm	≤-36 dBm
	1GHz~12.75GHz	≤-30 dBm	≤-30 dBm
Noise Figure @ max. Gain		≤8 dB	≤8 dB
Time Delay		≤1.5 μs	≤1.5 μs
Power Consumption		<55 W	
[1] Power Supply		DC+12V	

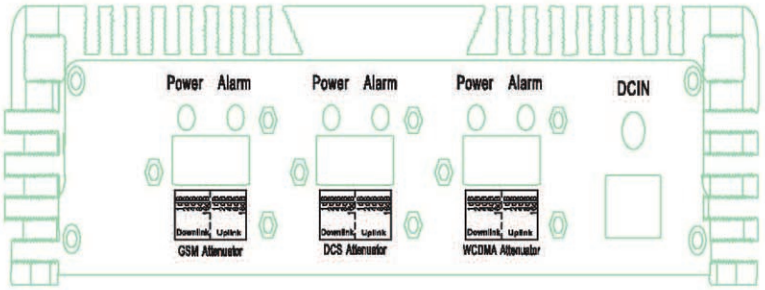
Note : [1] subject to the actual products

3.4 Mechanical Specification

RF Connector	N-Female
Cooling	Heatsink Convection cooling
Dimensions (D x W xH)	330*268*58（mm）
Weight	< 5 Kg
Installation Type	Wall Installation
Environment Conditions	IP40
Humidity	< 90%
Operating Temperature	-10℃~55℃

3.5 Appearance Diagram

3.6 Ports



Chapter 4 Installation

4.1 Installation requirements

GDW triple wide band repeaters are mainly applied as indoor coverage system, the changes of air moisture and temperature may influence its reliability. So such factors as the temperature, air moisture, dustproof, current source and space requirement, etc shall be fully considered during installation.

• Position selection

- Install in the place that is not easy to be reached by irrelevant people.
- Install at the place that is convenient for power supply and cabling.
- Avoid heat source and moist environment.
- Install at drought space, hang on wall vertically in order to assure good heat distribution.

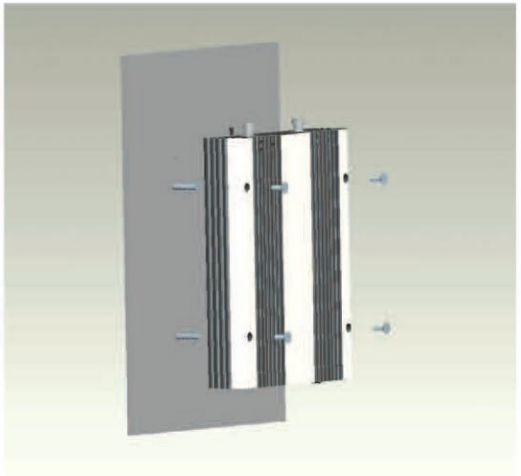
• Power supply requirement

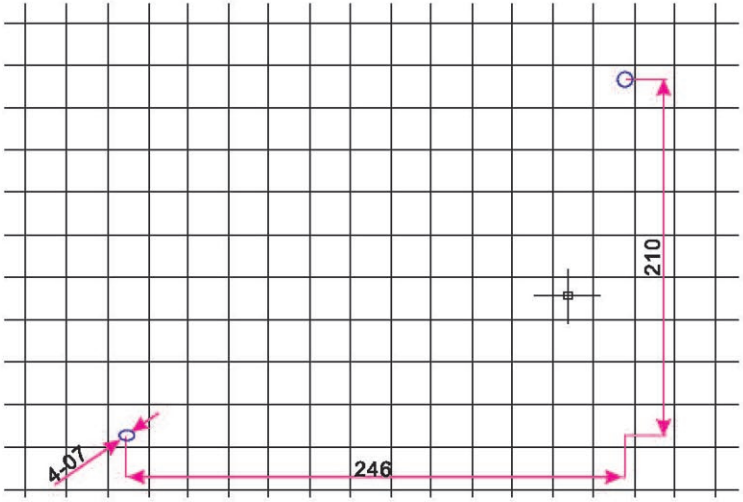
AC power supply of 85~150V
AC power supply of 150~280V

• Installation tools and accessories

Series	Item	specification	Quantity	Remarks
1	Expanding plug	M7	4	Accessories
2	Tapping screw	M6*40	4	Accessories
3	Spinner			
4	Waterproof tape			
5	Ruler		1	measurement and installation of hole
6	Percussion drill		1	drilling on wall

4.2 Installation





Picture 4.2 Hole positions

Installation Steps:

A) Use percussion drill to make four Φ6 holes on the wall according to above hole diagram.
B) Fill the holes with expanding plug.
C) Put the tapping screw through the holes and fit tightly with the expanding plug, and fasten the repeater onto the wall.
D) Make sure that the installation is firm and correct.

4.3 Connection

- Connection of RF cable

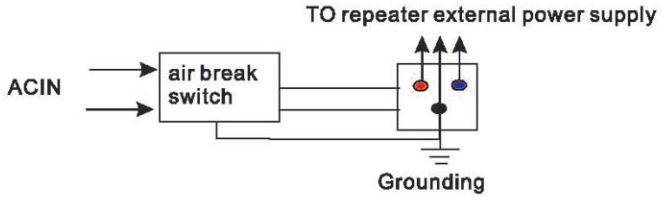
Input Port : donor antenna cable is connected with Input Port;
Output Port : service antenna cable is connected with Output Port;

- **Grounding**

Please connect one end of a copper wire with the intersection size of 16mm2 with the grounding screw, and the other end with the grounding system of the building. It is requested that the grounding impedance shall be less than 10Ohm.

- **Power supply connection**

Installation of air switch is recommended for the convenience of power supply switch off.
Please use three-pin plug to assure good grounding.
Please use the grounding screw, nut, washer to connect the grounding wire and repeater shell.
Lightening Arrestor can be installed if necessary.



Picture 4.3 Power supply connection

4.4 System inspection

The followings should be checked after installation:

- Grounding impedance<10Ω;
- Antenna socket, cable are well grounded;
- Power supply lightening protection
- Building lightening protection
- Antenna lightning Protection.

Chapter 5 Repeater Setting

Please check whether the connection of RF cable is correct (donor antenna connected to Input Port, service antenna connected to Output Port), and whether every port is stable. After affirmation, please go along the followings:

5.1 Power supply connection

After power supply connection, check ALARM and POWER indicators first.

- **Status and definition of POWER indicators:**

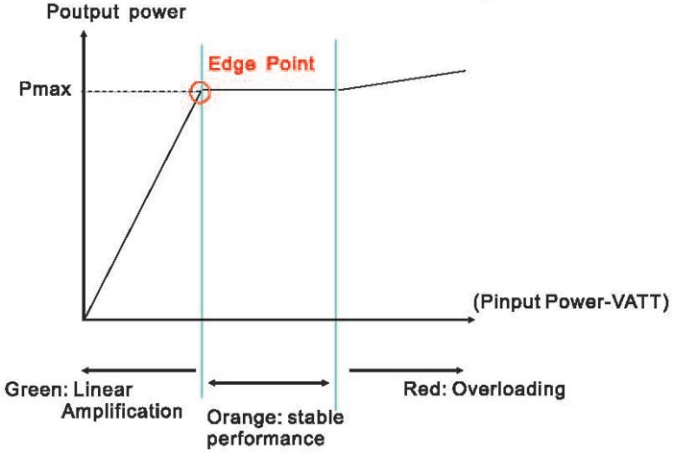
Status	Definition
green	Normal
off	DC power problem

- **Status and definition of ALARM indicators:**

Status	Definition of ALARM
green	Meaning: working in linearity, not Max. output power
	Attention: Input signals may be not enough
red	Meaning: overloading or self oscillation, strong input signals.
	Attention: input signal level is too high or the space of donor antenna and service antenna is not enough. please adjust the isolation, If the red light still turning on that means over accepting of donor antenna or strong interference, then please adjust the place of donor antenna.
orange	Meaning: working at Max. output power and ALC is working.
off	Repeater break down

5.2 Performance setting

- **Curve chart of equipment working condition**



Picture 5.1: Curve of output power, input signal and attenuation value

Poutput Power: output power
Pinput Power: input power
VATT: attenuation vale Pinput Power -VATT:
input power—attenuation value Pmax:
output power rating

- **Downlink gain setting**

As for the downlink working performance, "orange" is a good working point. At this time, downlink output power and coverage effect are stable.

But from another point of view, we hope the equipment is as far as possible away from overloading status of "red" (thus the equipment would hold higher interference depression ability). So we try our best to set the equipment near "edge point" when engineering.

Setting of "edge point" : (Switch on the power supply after connection with donor antenna and coverage antenna, and observe ALARM indicator.)

■ If it shines "orange", use 1dB as stepping to increase attenuator until "green" turns on, then decrease 1~3dB attenuation value until "orange" turns on. The setting of downlink gain can reach the perfect status.

■ If it shines "green" then. To check whether the attenuation value has been set, if it is, use 1dB as stepping to decrease attenuation until the "orange" turns on, then the downlink gain can reach the perfect status. But if attenuation is not set, it indicates that the input power is not enough. Then please check coverage effect first, if the coverage effect is good, the engineering has reached expecting target, But if the coverage effect is not so good, the donor antenna should be adjusted until "orange" turns on or the effect reaches the target.

●Uplink gain setting

Uplink gain is set based on downlink gain..
Standards: uplink attenuation value=downlink attenuation value

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Chapter 6 Engineering Maintenance

6.1 Operation and maintenance

- **Equipment Disassembly**

Close the outside air switch
Plug off the power supply

- **Cleaning**

Close the outside air switch
Plug off the power supply.
Do not use liquid materials to clean the equipment to avoid short circuit.;
Please use dry dishclout.

- **Grounding**

Using grounded power plug (three-pin plug)

- **Power supply**

Please make sure the voltage and frequency comply with the repeater requirement.

- **Component replacement**

Please do not maintain or replace components by yourself, otherwise may get an electric shock. Only the authorized professional can maintain and replace the components.

- **Waterproof and moist proof**

Please do not turn on or off the booster in moist environment when its door is opened.

6.2 Emergency dealing

Switch off is recommended during following situations:
- The power supply is not normal.
- Liquid flows into the equipment;

- Working conditions is not normal, (overheating, abnormal smelling, abnormal sundries).
- Closet damage.
- Performance decreasement
- Near to fire
- Flooding.

6.3 Maintaining directions

Please check the booster step by step according to below processes, to find out the problem with the repeater